

U.S. DEPARTMENT  
OF HEALTH AND  
HUMAN SERVICES

Centers for  
Disease Control  
and Prevention

# Mammograms & Breast Health

**An Information Guide for Women**

This booklet was developed by the Centers for Disease Control and Prevention.

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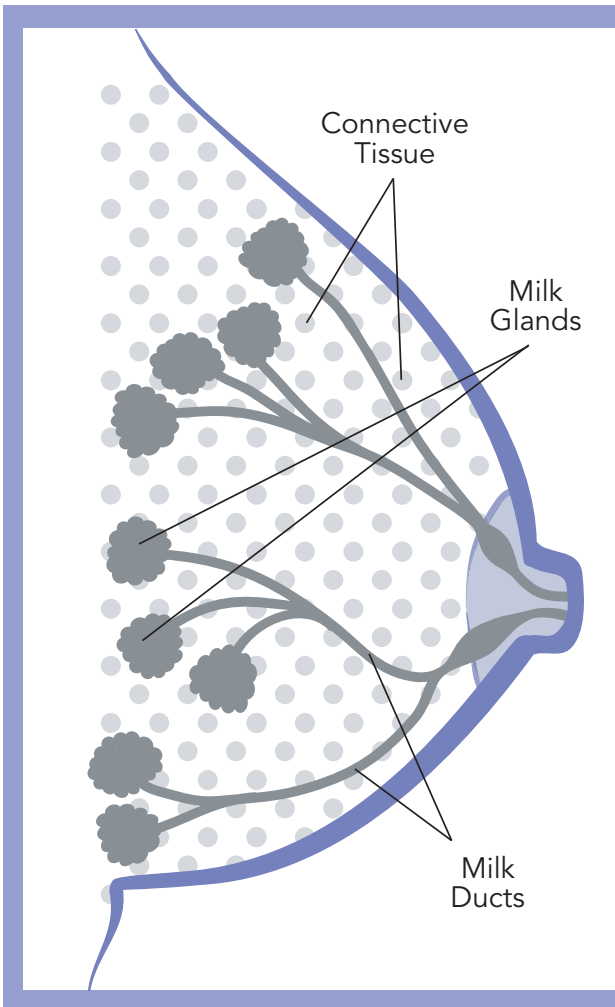
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# Introduction

This booklet explains the mammogram, an x-ray test that is used to find breast cancer. To understand how and why this test is used, let's begin with some basic information on the breast and breast health.



# Understanding **Breast Health**



## What are breasts made of?

The breast is made up of three main parts: glands that produce milk; ducts, or passages, that carry milk to the nipple; and connective tissue (which consists of fibrous and fatty tissue) that connects and holds everything together. Most breast cancers occur in the glands and ducts.

## What is a normal breast?

There is no such thing as a typical breast. What is normal for one woman may not be for another. Most women say that their breasts feel a little lumpy and uneven. Breasts may also be swollen and tender right before or during a menstrual period. In addition, breasts will look and feel different as you age.

## What can affect my breasts?

Many things can affect how your breasts look or feel, including:

- Your age
- Your weight
- Having children
- Whether you still get periods
- Taking certain medications or hormones

## Lumps and breast health

Most women have some lumpiness in their breasts and most breast lumps are caused by conditions other than cancer.

The most common cause of lumpiness is “fibrocystic” disease, a noncancerous condition that affects more than half of **all** women. Common signs of fibrocystic breasts include lumpiness, tenderness, and breast pain. Having fibrocystic breasts can sometimes make it more difficult to detect breast cancer, but it does not increase your risk of getting breast cancer. Cysts are another common cause of lumps. They are fluid-filled sacs that can develop inside a breast.

A lump in the breast *can* be a symptom of cancer, but most of the time, early breast cancer can’t be felt. If you have a question about any breast lump, talk to your health professional. He or she can help determine what is causing the lump, often with the help of diagnostic tests.

## Examining your breasts

While breast self-exams are a common practice, not all experts recommend them. Some experts say that there is not enough scientific evidence to show that monthly breast self-exams reduce the number of women dying from breast cancer. They also say self-exams sometimes lead to anxiety and unnecessary tests. Others say that breast self-exams find cancers that other tests miss. They also say that self-exams help women become more familiar with their breasts and let them find changes that may need to be checked out. Talk to your doctor or other health professional about the benefits and limitations of performing regular breast self-examination.

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# About **Breast Cancer**

## **Tumors and breast cancer**

Sometimes breast cells become abnormal. These abnormal cells grow, divide, and create new cells that the body does not need and that do not function normally. The extra cells form a mass of tissue called a tumor.

Some tumors are “benign,” or noncancerous. Benign tumors generally stay confined, don’t spread to other parts of the body, and don’t cause major health problems.


Other tumors are “malignant,” or cancerous, and have the ability to spread and damage healthy cells in other parts of the body. Malignant breast tumors can spread to other tissues, such as lymph nodes, bone, liver, lungs, and brain, and can cause death.

## **What causes breast cancer?**

As with many types of cancer, medical experts do not know exactly what causes breast cancer. Almost all breast cancer, however, occurs in women. Breast cancer can develop in men, but it is very rare and accounts for less than half of 1 percent of all breast cancers.

Researchers do know that bumping, bruising, pinching, or touching the breast does not cause breast cancer. They also know that you cannot “catch” breast cancer from another person.

As scientists continue to research possible causes of breast cancer, they have identified certain factors that increase a woman’s risk for breast cancer.



*“I take charge of my health by asking questions and getting as much information as I can.”*

## What affects my risk for breast cancer?

- **Age:** The chance of getting breast cancer increases as a woman gets older. Most breast cancers occur in women after menopause. Breast cancer is extremely rare in women in their teens or early 20s and uncommon in women under age 40. In fact, 94 percent of new cases of breast cancer occur in women over the age of 40.
- **Family History:** A woman's risk of breast cancer increases if she has any close relatives with either breast or ovarian cancer on either side of the family. The risk is influenced by the closeness of the relatives, the total number of relatives with breast or ovarian cancer, and the age when the relatives were diagnosed. Be sure to tell your doctor if any of your relatives have had breast or ovarian cancer. If you don't have a family history of breast or ovarian cancer, remember that your risk is influenced by many other factors. Many women who develop breast cancer have no family history of the disease.

**Many women who develop breast cancer  
have no family history of the disease.  
Remember that your risk is influenced by many factors.**

- **Race:** Breast cancer is more common in some racial and ethnic groups than in others, though medical experts do not know why. Breast cancer occurs more often in white women than Hispanic, African American, Asian, or Native American women. African American women, however, are more likely to die of breast cancer than women of other racial and ethnic groups.
- **Childbearing History:** Not having children, or having your first child later in life (in your 30s and 40s) increases your chance of getting breast cancer.
- **Certain Medications:** Using hormone replacement therapy (HRT) for several years or longer after menopause may increase your risk. Talk to your doctor about the risks and benefits for you.
- **Personal History of Breast Cancer:** Women who have had breast cancer in one breast have an increased risk of getting breast cancer in the other breast.



## Staying healthy and preventing cancer

Medical experts are still researching how to prevent cancer. The following are recommended to protect your overall health and may help reduce your risk for certain cancers:

- Eating five servings or more of fruits and vegetables each day
- Getting regular physical activity
- Maintaining a healthy weight
- Limiting alcohol intake to no more than one drink a day
- Not smoking, or quitting if you do smoke

Women at high risk for breast cancer may benefit from drug therapy.

## What are the symptoms of breast cancer?

Most of the time, early breast cancer **does not** have any symptoms. As it grows, however, breast cancer can sometimes cause changes in how your breast looks or feels. Symptoms include:

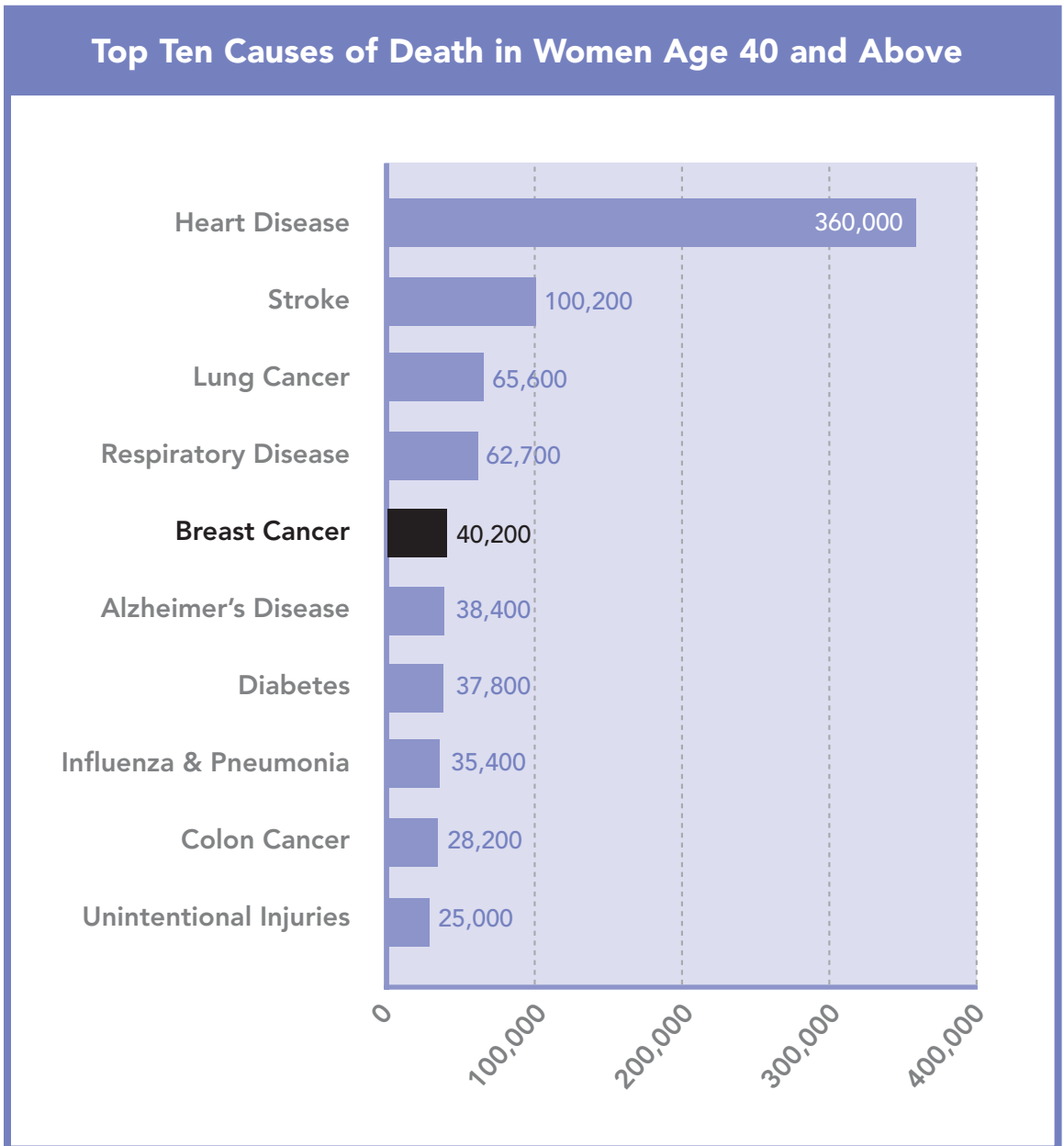
- A lump that wasn't there before
- A lump that has changed
- A change in the size or shape of the breast
- Pain in your breast or nipple that doesn't go away
- Skin anywhere on the breast that is flaky, red, or swollen
- A nipple that is very tender
- A nipple that turns in (when it hasn't been like that before)
- Fluid coming from your nipple when not nursing a baby

If you have noticed any of these changes, check with your health professional.

Breast symptoms are often caused by something other than cancer, but only your doctor can tell.

## Is breast cancer the most common cause of death for women?

No. Among all diseases that kill women age 40 and above, heart disease is the number one cause of death. Breast cancer is the **fifth** leading cause of death. Each year, approximately 40,000 women will die from breast cancer.



## How many women are affected by breast cancer?

Each year, approximately 210,000 women will be diagnosed with breast cancer and more than 40,000 women will die from it. Over her lifetime (from birth to death), a woman has about a 1 in 8 chance of being diagnosed with breast cancer, and a 1 in 34 chance of dying from it. As she gets older, her chance of getting or dying from breast cancer increases. See the chart below.

**Women's Risk of Breast Cancer by Age**

By Age	Getting Breast Cancer	Dying from Breast Cancer
Age 30	1 in 1,950	1 in 19,180
Age 35	1 in 550	1 in 4,600
Age 40	1 in 210	1 in 1,600
Age 45	1 in 100	1 in 740
Age 50	1 in 53	1 in 385
Age 55	1 in 33	1 in 230
Age 60	1 in 22	1 in 150
Age 65	1 in 16	1 in 106
Age 70	1 in 13	1 in 80
Age 75	1 in 11	1 in 63
Age 80	1 in 9	1 in 50
Age 85	1 in 8	1 in 43
Over Age 85	1 in 8	1 in 34

# Understanding **Mammograms**

## **Mammograms: Why should I get one?**

Regular mammograms are the best tool doctors have to find breast cancer early. A mammogram can show early signs of cancer long before you or your doctor can feel or see changes. When breast cancer is found and treated early, many women go on to live a long and healthy life.

**Regular mammograms are the best tool doctors have to find breast cancer early.**

## **What is a mammogram and how is it done?**

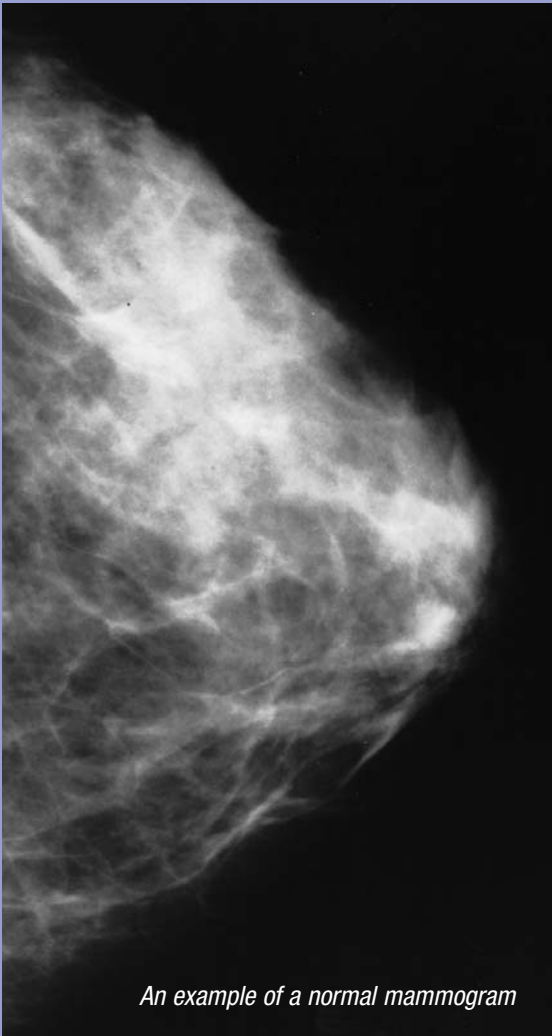
A mammogram is a low-dose x-ray picture of the breast. A woman stands in front of a mammography machine, and one of her breasts is placed on a clear plastic plate and gently, but firmly, pressed from another plate above her breast. The plates flatten the breast and keep it still, which helps produce a better mammogram image. The pressure lasts a few seconds and does not harm the breast. The same steps are repeated with the other breast. The plates of the machine are then tilted to take a side view of each breast. When done, a woman will have had two different x-rays, or views of each breast, for a total of four x-rays.



*Woman getting a mammogram*

## Will the mammogram hurt?

Most women say that getting a mammogram is uncomfortable. A few women say that it is painful, although the pain doesn't last long. What you experience will depend upon the size of your breasts, how much your breasts need to be pressed, the skill of the technologist, and where you are in your monthly menstrual cycle.



*An example of a normal mammogram*

## How does mammography work?

The mammography machine produces a mammogram, or a black-and-white x-ray of the breast on a large sheet of film. A doctor, usually a specialist called a radiologist, then views the film carefully. Radiologists are medical doctors who have special training in diagnosing diseases by examining x-rays. The radiologist will carefully look at or "read" your mammogram, interpreting it for signs of cancer or other problems. The breast image on a mammogram varies a great deal from woman to woman, and there is a wide range in what is considered normal. That is why radiologists prefer to compare your mammogram with any previous ones you have had. This makes it easier to find small changes and detect cancer as early as possible.

## Questions to ask your doctor or mammogram facility

When getting a mammogram, consider asking:

- What's involved in getting a mammogram? How long will I be there?
- Do you have my previous mammograms?
- When will my doctor get the results?
- When and how will I learn about the results?
- When will I need to schedule my next mammogram?

### **When do I get the results?**

The way you get the results of your mammogram varies by facility. At many facilities, the radiologist reads the mammogram in a few days to a few weeks and sends the results to you and your doctor. Some facilities ask you to wait several hours while the radiologist reads it that day.

Almost all facilities ask you to wait until the mammogram film is developed and checked to make sure it is clear and doesn't need to be redone. Keep in mind that the technologist can only say if the film is of good quality. She cannot read the film or tell you the results of your mammogram.

Before you get your mammogram, ask when and how you will get the results. All facilities are required by law to give you a written report of your mammogram results within 30 days – sooner if your results are abnormal. If you do not receive a report of your results within 30 days, contact your health professional or the mammography facility.

### **What can affect my mammogram?**

Surgery and major injuries can affect your mammogram. Be sure to tell your health care team if you have had breast reduction, breast reconstruction, or breast implants. Women with certain surgical procedures may need additional x-ray pictures taken during their mammogram.

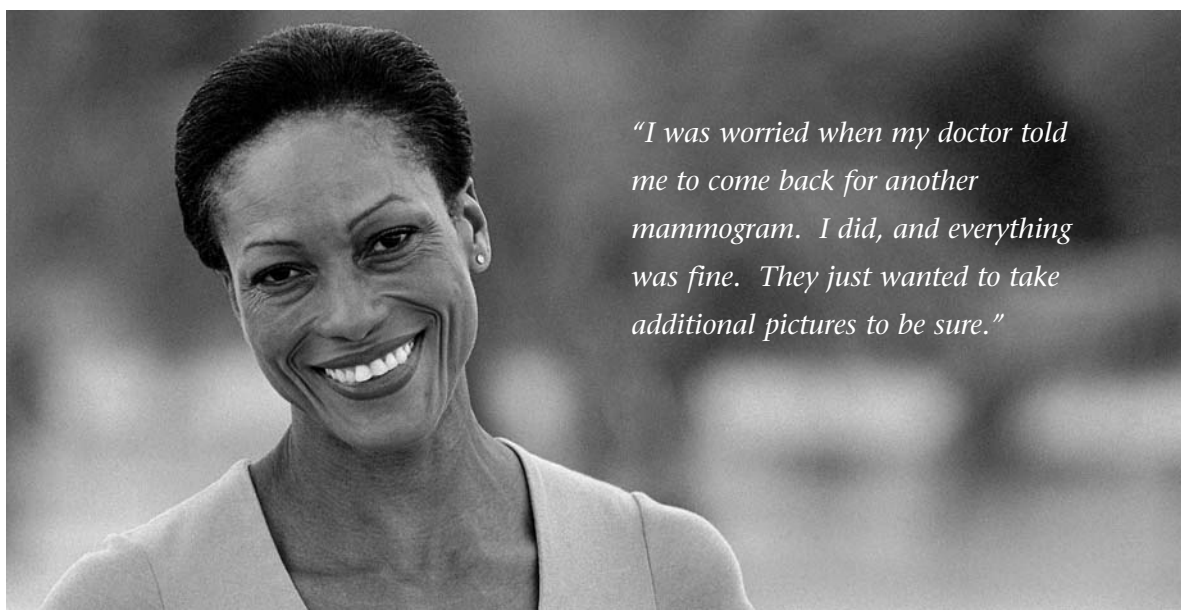
## When should I get a mammogram?

Most medical experts agree that women who have no previous breast symptoms or problems should begin getting mammograms at age 40. (They no longer recommend getting a baseline mammogram at age 35.) Experts' opinions vary on how often women should get mammograms, but most recommend that a woman get a mammogram every one or two years. Talk to your doctor if you have any breast symptoms or a family history of breast cancer. You may need to get tested earlier or more frequently.

## Screening and diagnostic mammograms

Mammograms are used for two main reasons: screening and diagnosis. *Screening* mammograms are used to check women who have no signs or symptoms of breast cancer. It usually involves two x-rays of each breast. The goal of a screening mammogram is to find cancer early, when it is too small to be felt by a woman or her doctor. Finding breast cancer early greatly increases a woman's chance for successful treatment.

*Diagnostic* mammograms are used when a woman has breast symptoms or an abnormal mammogram. During a diagnostic mammogram, different pictures are taken to carefully study the breast. In most cases, special images magnify a small area of the breast, making it easier to read. Sometimes a woman will receive a diagnostic mammogram shortly after her screening mammogram. It is used to examine abnormalities found on the first mammogram.



*"I was worried when my doctor told me to come back for another mammogram. I did, and everything was fine. They just wanted to take additional pictures to be sure."*

## Tips for getting a mammogram

- When possible, try to avoid scheduling your mammogram when your breasts are tender or swollen, such as the week before or during your period.
- On the day of the exam, don't wear deodorant, perfume, or talcum powder. Sometimes ingredients in these products can show up as white spots on a mammogram.
- You may find it more comfortable to wear a top with a skirt or pants, instead of a dress. This way you'll only have to remove your top during the mammogram.
- Be prepared to describe any breast symptoms, changes, or problems to your health care team. They may also ask you about your medical history, such as prior surgeries or injuries, hormone use, and family or personal history of breast cancer.
- If you are changing mammogram facilities or seeing a new doctor, try to arrange for your previous mammograms to be sent to the facility before your appointment. This will help the radiologist check for changes in your breasts.



## How accurate is a mammogram?

Getting regular mammograms is the most effective way to detect changes in the breast, but the test is not perfect. Sometimes a woman's mammogram will show signs of abnormalities, but further testing will show that there is no cancer. Other times, a woman's mammogram will appear to be normal, when she actually had signs of cancer. Not all cancers show up on a mammogram, or they can be difficult to see. Before menopause, women tend to have dense breast tissue that is harder to read on a mammogram. As women age and go through menopause, their breasts change and signs of breast cancer are easier to detect.

If 1,000 women over age 40 get a mammogram:

- **920** will have a **normal mammogram** (although a small number of these women will have a cancer that was missed by the mammogram).
- **80** will have an **abnormal mammogram** and require further tests.

After further testing, results will show:

- **76** do not have breast cancer.
- **4** have cancer.

## New technologies

Research is being done to study new ways of taking images of the breast and detecting cancer early. They include:

- MRI, or magnetic resonance imaging
- CAT, or computerized axial tomography scans
- PET, or positron emission tomography scans

These tests may help make a diagnosis after a woman has had an abnormal mammogram. The effectiveness of these new techniques in screening large numbers of women without signs or symptoms of breast cancer is uncertain.

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# After the **Mammogram**

## **What if my mammogram is normal?**

Ask your health professional when you should get your next one and continue to get mammograms on a regular basis. Also, find out how often your health plan covers them. Some plans pay for screening mammograms once a year; others pay for them every two years.

## **What if my mammogram is abnormal?**

*Do not panic.* Mammograms find many conditions that are not cancer. Most women who need further exams or testing do not have cancer. Some of the usual follow-up exams and tests are described below. The tests your doctor recommends will depend on what showed up on your mammogram.

### **1. Additional Diagnostic Mammograms**


A doctor may ask for additional diagnostic mammograms to get different or bigger views of a particular area of a breast. These views supplement what a doctor sees on a regular mammogram, letting him or her examine an area more carefully.

### **2. Ultrasound**

An ultrasound is a test that can be used to supplement (not replace) a mammogram. It uses sound waves to make pictures of the breast. This test is more commonly used in younger women or women with dense breast tissue. The doctor or technician views the picture on a monitor.

### **3. Exams by Specialists**

Your doctor may send you to a specialist, such as a breast specialist or surgeon, for a physical exam or other tests. It does not necessarily mean you have cancer or need surgery. Breast specialists are experienced in conducting physical exams of the breasts, diagnosing breast problems, and performing biopsies (described on the next page).



*“Take time and get screened. I did, and my breast cancer was detected early and treated.”*

#### **4. Biopsy**

A biopsy involves removal of small samples of breast tissue, which can be done with a needle or through surgery. A needle biopsy is usually performed in the doctor’s office. A woman receives a shot in the breast to numb the area, and the doctor inserts a needle to withdraw some tissue. A surgical biopsy is usually performed at a surgical center, the doctor’s office, or a hospital. Typically, a woman will receive sedation (medication to help her feel relaxed and drowsy) before the surgeon makes a small cut in the skin of the breast. He or she removes a small piece of breast tissue in the suspicious area and sends it to a laboratory. A pathologist (a doctor who specializes in diagnosing diseases) examines the sample under a microscope to see if cancer cells are present.

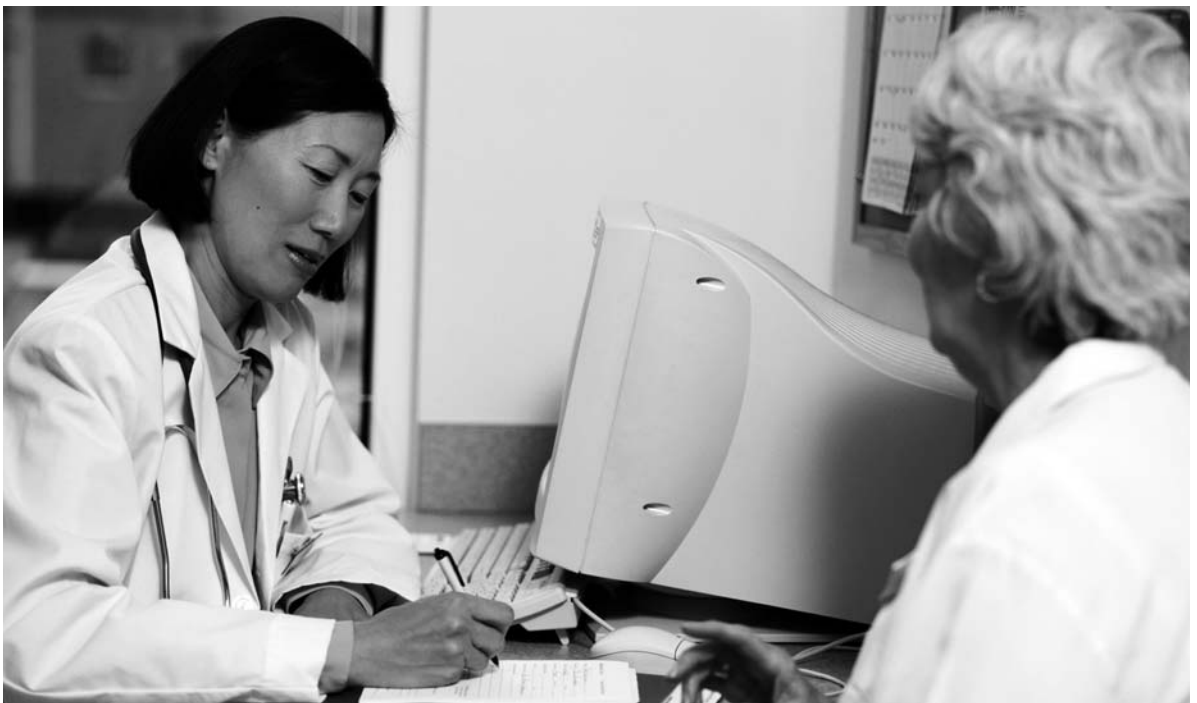
#### **What happens if they find breast cancer?**

For many women, treatment for breast cancer begins within a few weeks after the diagnosis. Usually, a woman has time to learn about her options and doesn’t have to make an immediate decision. She can discuss her treatment choices with her doctor, get a second opinion, talk to friends, or learn from other women with cancer. Not all breast cancers are treated the same way, and different treatments have different advantages and disadvantages. It is normal to feel some shock and stress, making it hard to process information at first or even to ask questions. Some women find it helps to make a list of questions, take notes, or have a family member or friend with them when they talk to the doctor. The most important thing is that a woman feels informed of her options and comfortable with her decision.

## How is breast cancer treated?

There are many different types of treatments available for breast cancer. A woman will most likely be sent to a doctor who is an expert in a particular type of treatment. This may be an oncologist, surgeon, or other kind of specialist. Each of these doctors has extra training and experience in the type of treatment they offer. Understanding all the options and talking to her primary doctor may help a woman choose the treatment that is best for her. Common treatments for breast cancer include one or more of the following:

- **Surgery** involves an operation in which some of or the entire breast is removed. Several types of surgeries are used in breast cancer, so ask your doctor to explain your options, the pros and cons of each, and how they will affect how your breast looks. Surgery is the most common treatment for breast cancer.
- **Radiation therapy** uses special high-energy x-rays and other types of radiation to kill cancer cells.
- **Chemotherapy** uses drugs to kill or stop the growth of cancer cells.
- **Hormone therapy** removes hormones or blocks their action to stop cancer cells from growing.



## Resources

### Where can I get a mammogram?

If you have a regular doctor, talk to him or her about getting a mammogram. Most private health insurance companies, HMOs, Medicaid, and Medicare pay for part or all of the cost of mammograms. Check with your plan for details or if you have any questions about your coverage. If you don't have health insurance and need help finding a low-cost or free mammogram, check with your local hospital, health department, women's center, or other community groups.

The Centers for Disease Control and Prevention (CDC) also has a program called the National Breast and Cervical Cancer Early Detection Program. It works with health departments and other groups across the country to provide free or low-cost mammograms for women who qualify. To find out more about this program, please call your local health department or the numbers below.



### Who can I talk to if I have additional questions?

Talk to your health professional. You can also call the National Cancer Institute's Cancer Information Service (CIS) at **1-800-4CANCER (1-800-422-6237)**. CIS Information Specialists can answer your questions about mammograms, breast cancer, and other issues in English or Spanish from 9:00 AM to 4:30 PM in your time zone.

**If you have TTY equipment, the number is 1-800-332-8615.** Information about CDC programs and services is also available at **1-800-CDC-INFO (1-800-232-4636)**. Call **1-800-MEDICARE (1-800-633-4227)** for information about Medicare.

## Where can I learn more?

For information on the World Wide Web or Internet, check out these sites:

[www.cdc.gov/cancer/nbccedp](http://www.cdc.gov/cancer/nbccedp) – CDC’s National Breast and Cervical Cancer Early Detection Program

[www.cancer.gov](http://www.cancer.gov) – The National Cancer Institute

[www.medicare.gov](http://www.medicare.gov) – Resources for Medicare information

[www.fda.gov/cdrh/mammography](http://www.fda.gov/cdrh/mammography) – The Food and Drug Administration (FDA) provides a list of approved mammogram facilities on its website.

[www.healthfinder.gov](http://www.healthfinder.gov) – This online health information resource links consumers to carefully selected federal and nonprofit websites from more than 1,500 health-related organizations. Type “mammograms” (or other term) to search for more information.

**Please note additional resources or questions here:**





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